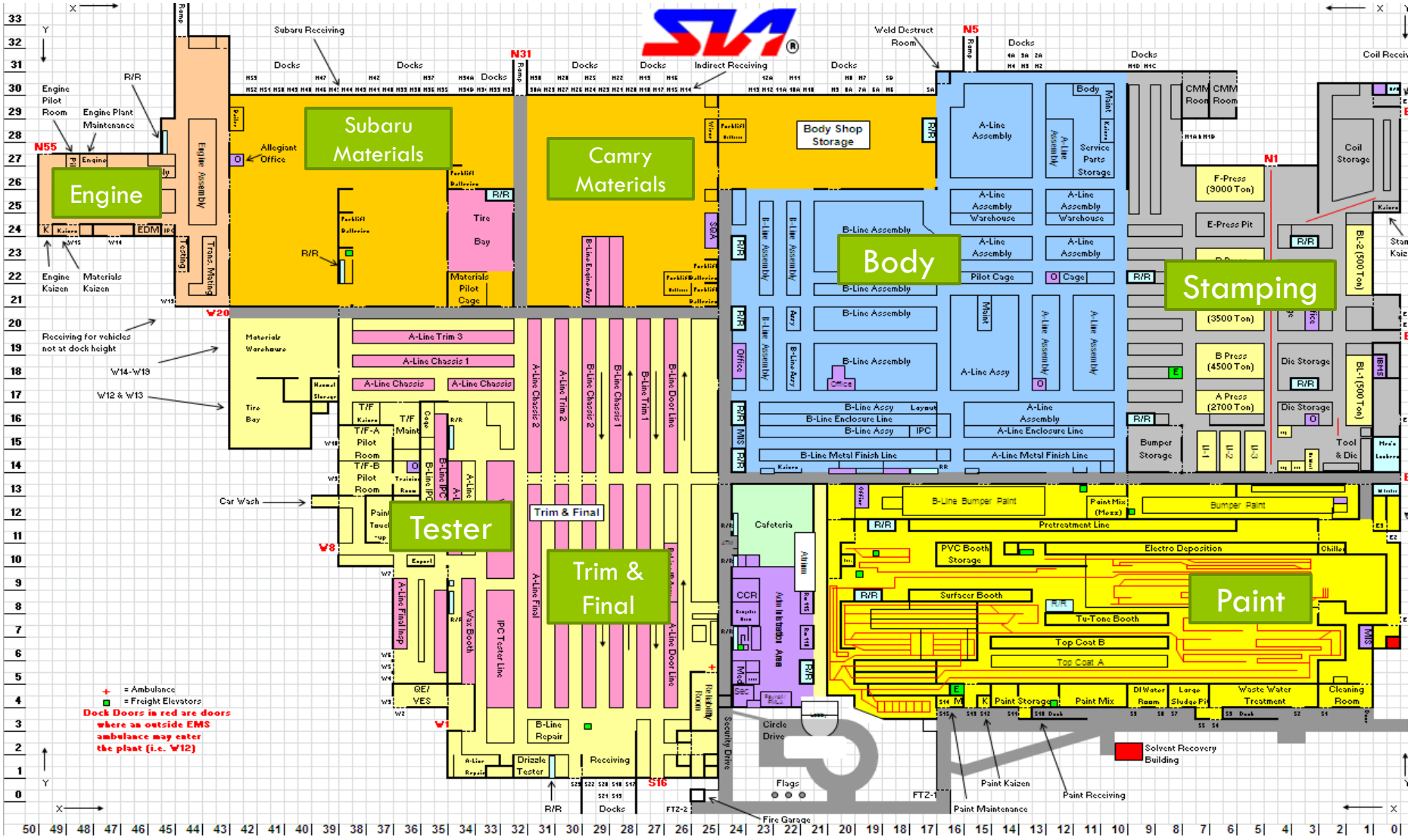
MEASURING FOR THE FUTURE

From Zero Landfill to Sustainability

Subaru of Indiana Automotive, Inc.

Plant Layout—5-stage process



The Zero Landfill Journey

Where do we start?

With a good inventory

AKA the dumpster dive

The List:

- What types of waste are being generated
- Order it by volume or weight

Have to know what you're dealing with, in order to deal with it

The Zero Landfill Journey

Motivate Management through Measurement

- Develop a system to measure the waste being generated
- Make it ACCURATE
- Level the playing field
  - pounds of waste per unit, per capita
- Make managers accountable
  - ECOC
- Provide further motivational tools

HERITAGE INTERAC

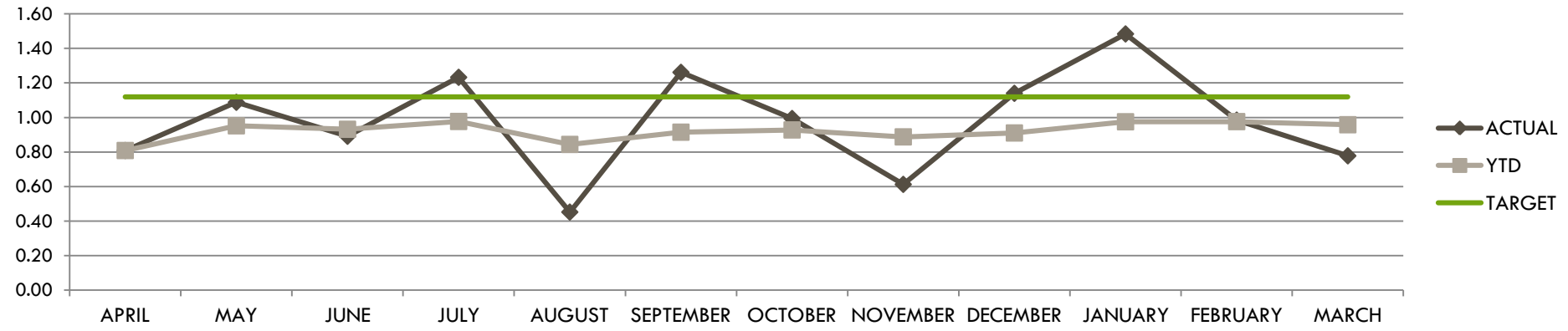
Material	Location				Gondola #	Weight	Gondola #
CB	X	29.5	Y	15.5			
CB	X	29.5	Y	21.5			
CB	X	30	Y	3			
CB	X	30	Y	9.8	131	109	
CB	X	30	Y	12.8			
CB	X	30	Y	21.5	028	49	
CB	X	30.5	Y	4.5			
CB	X	30.5	Y	6.5			
CB	X	30.5	Y	7	037	56	
CB	x	30.5	y	7.5			

The Zero Landfill Journey

Shop Environmental Data--Body

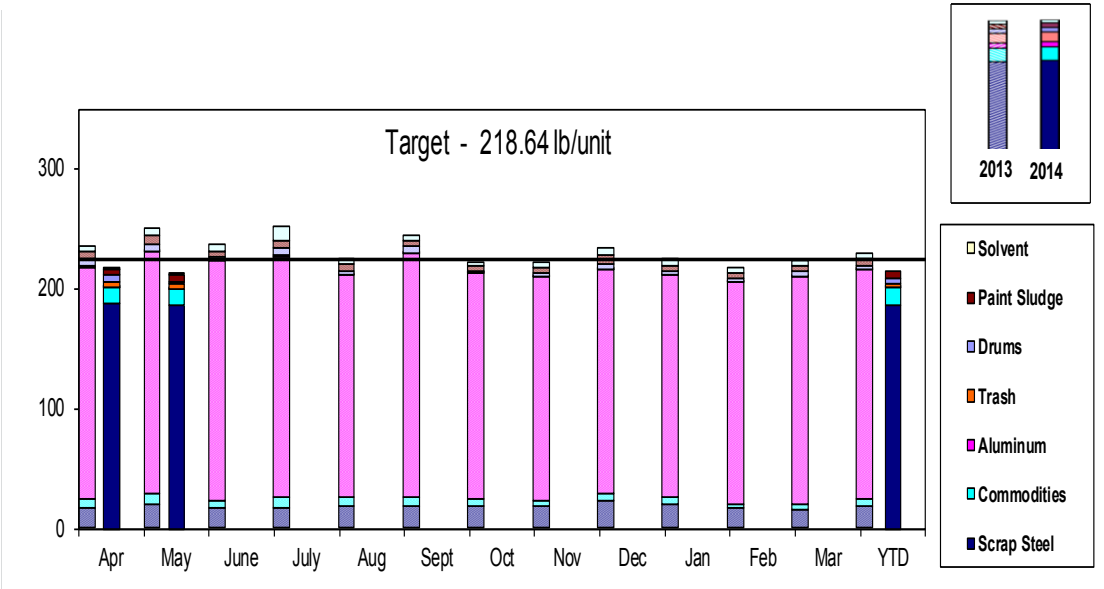
FY2013		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH		YTD	
WS	DESCRIPTION	LBS/UNIT	TOTAL	LBS/UN	TOTAL	LBS/UN	TOTAL	LBS/UN	TOTAL	LBS/UN	TOTAL	LBS/UN	TOTAL	LBS/UN	TOTAL	LBS/UN	TOTAL	LBS/UN	TOTAL	LBS/UN	TOTAL	LBS/UNIT	TOTAL	LBS/UNIT	
	TRASH	0.34	6492	0.28	5237	0.43	5615	0.20	8480	0.38	10119	0.39	3678	0.16	5076	0.29	4981	0.20	6006	0.25	5285	0.21	77130	0.28	
	POLYSTYRENE	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
	POLYPROPYLENE	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
	CARDBOARD/MIXED PAPER	0.14	3729	0.16	1513	0.12	1230	0.04	1890	0.08	2125	0.08	1904	0.08	2365	0.13	2792	0.11	2652	0.11	2330	0.09	28843	0.11	
	PLASTIC	0.01	310	0.01	86	0.01	111	0.00	31	0.00	0	0.00	80	0.00	328	0.02	543	0.02	451	0.02	373	0.02	3433	0.01	
10182-11	USED OIL	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	714	0.04	0	0.00	0	0.00	0	0.00	714	0.00	
10182-80	USED GREASE	0.00	0	0.00	0	0.00	0	0.00	0	0.00	841	0.03	0	0.00	0	0.00	2542	0.10	0	0.00	0	0.00	3383	0.01	
10182-94	BODY SEALER W/NO DEBRIS	0.06	0	0.00	0	0.00	1487	0.05	0	0.00	3160	0.12	0	0.00	0	0.00	2252	0.09	0	0.00	0	0.00	8374	0.03	
10182-123	NON-PCB CAPACITORS	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
10182-227	WASTE SURFACTANT	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
5500-3	BODY SEALER W/DEBRIS	0.31	9925	0.43	4528	0.37	4047	0.15	6532	0.29	9387	0.36	4886	0.21	10917	0.62	6412	0.25	14031	0.59	4730	0.19	89017	0.33	
5500-11	GREASE W/DEBRIS	0.00	0	0.00	279	0.02	0	0.00	0	0.00	0	0.00	0	0.00	373	0.02	268	0.01	200	0.01	105	0.00	1224	0.00	
5500-17	WASTE ABSORBENT, OIL, & ANTIFREEZE	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	414	0.02	0	0.00	0	0.00	0	0.00	414	0.00	
	WELD SLAG/COPPER	0.22	0	0.00	3448	0.28	0	0.00	11240	0.50	0	0.00	3494	0.15	0	0.00	17678	0.70	0	0.00	6422	0.26	47609	0.18	
	TOTAL	1.09	20456	0.89	15090	1.23	12490	0.45	28173	1.26	25632	0.99	14042	0.61	20187	1.14	37469	1.48	23341	0.98	19245	0.78	260140.1	0.96	
	UNITS		22,957		12,242		27,656		22,334		25,790		22,936		17,709		25,247		23,711		24,747		271,583		

FY2013 WASTE GENERATED--BODY

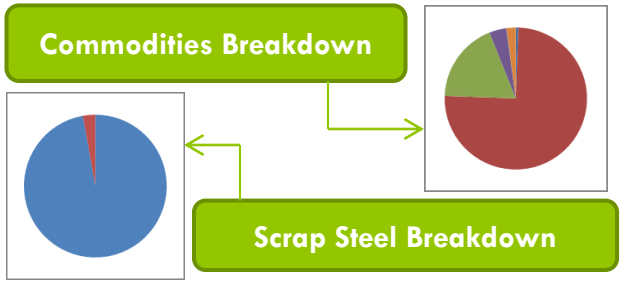


The Zero Landfill Journey

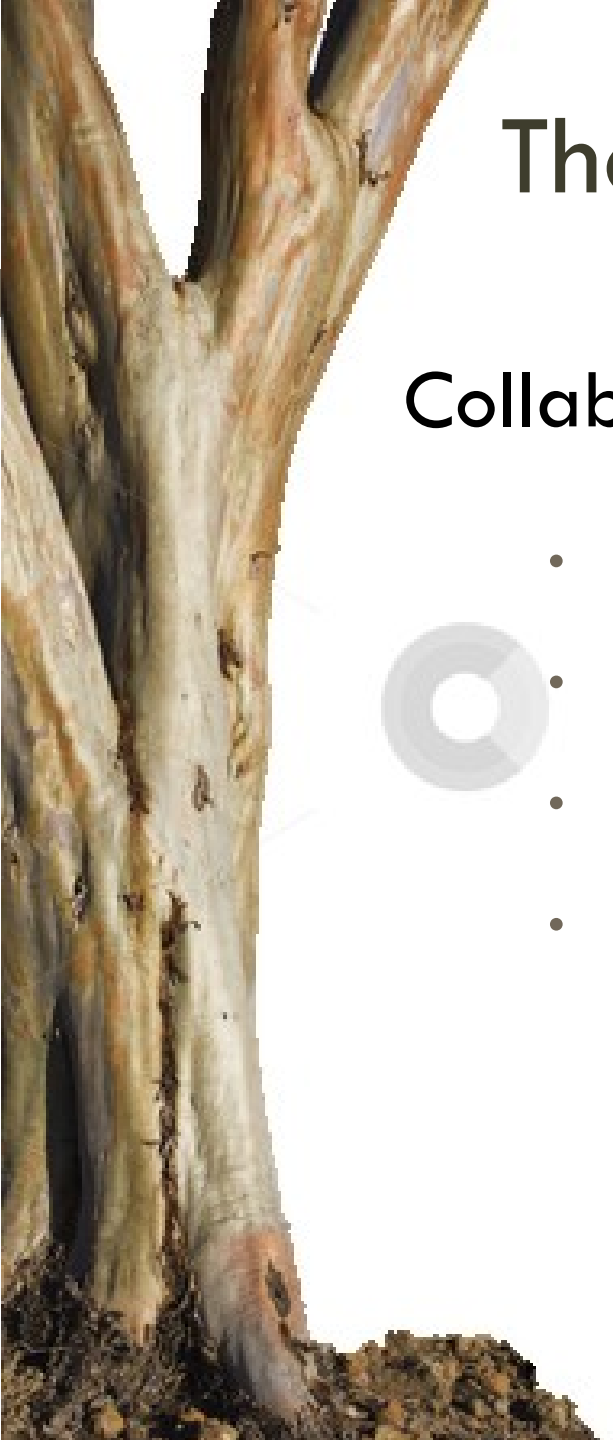
Environmental Compliance Oversight Committee



2014 FY	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	YTD	FY 2013
Drums	5.95	2.40											4.20	3.13
Paint Sludge	5.66	5.20											5.43	5.49
Solvent	0.38	0.54											0.46	0.40
Trash	3.86	3.86											3.86	5.33
Commodities	13.94	13.71											13.83	16.61
Scrap Steel	187.39	186.15											186.78	187.54
Aluminum	0.07	0.20											0.13	0.08



- Meets every month
- Senior Officers and Shop Managers
- Report Shop and Plant Environmental Data
- Report improvement activities



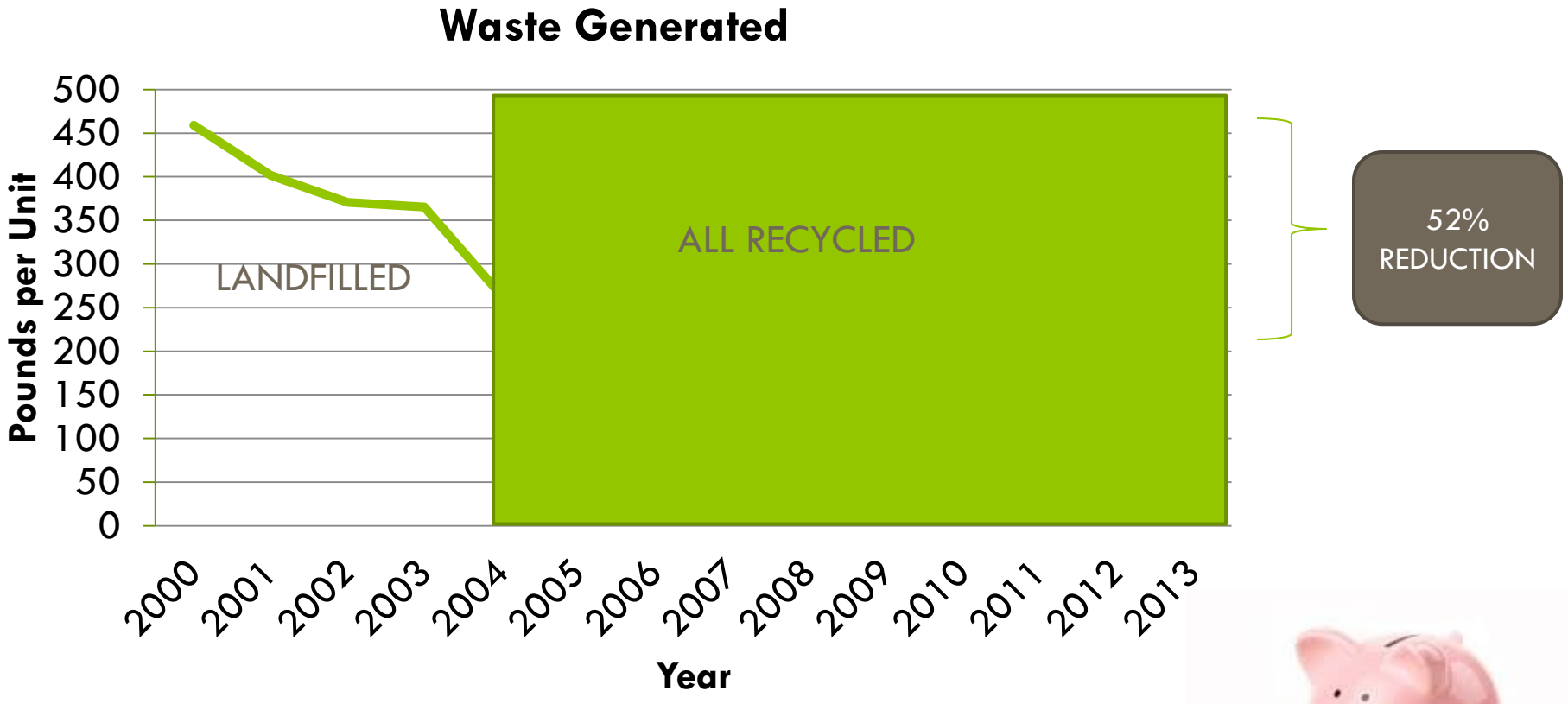
The Zero Landfill Journey

Collaboration

- Management
- Associate Involvement
- Suppliers
- Waste Experts
  - HES/HIS/Tradebe/Covanta/DGS

SIA worked to create a company culture valuing environmental improvements; complete collaboration was needed to make it happen.

Results



SIA has also recognized a **$13 million benefit** over the cost of its environmental program since going Zero Landfill

SIA's Challenges

- Converting the "non-believers"
  - Communicate and educate
    - External and internal benefits
  - Peer pressure

External	Internal
Helping the environment	Pride in workplace—marketing eco
Lower costs of operations	Rec, Daycare, Wellness Centers
Lower-priced vehicles	Bonuses
Better quality products	

- Maintaining the momentum
  - How do you improve upon "Zero?"

The View Today

- SIA achieved Zero Landfill over nine years ago.
- Very close to maximizing efficiencies/reductions for waste generated and discharged.
  - Leaves little room for employee participation, motivating targets, or manager engagement
- We have recently achieved ISO 50001(2012)
  - But it is not fully integrated with Environmental Program

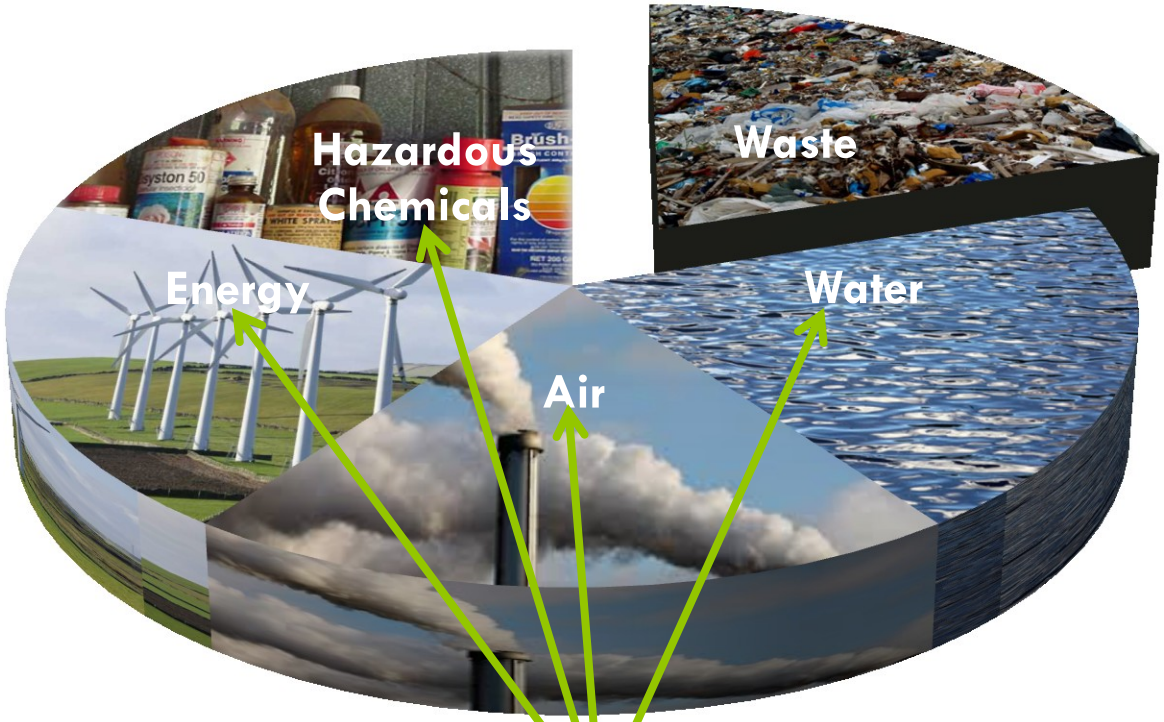
The Future—Sustainability

- Enact a comprehensive approach to resource evaluation by tracking and synthesizing information from **all** aspects of SIA operations.
- Employ a thorough assessment of plant impacts and develop meaningful and reliable metrics.
  - Encompass current inter-department system; expand internally to other departments and externally to Tier 1, 2 suppliers.
- Use metrics and data to set public environmental commitments by creating an SIA-specific sustainability report.

Sustainability Plan Description

To assess SIA's overall impact on the environment effectively, accurately, and with integrity. To use this assessment to create targets and commitments visible to the public in a sustainability report. To use this report to inspire continuous improvement allowing SIA to achieve significant environmental reductions.

Plant Environmental Impact



Shops currently **only** accountable for waste

OPPORTUNITIES for improvement and participation

Plant Sustainability Plan

SUBARU of INDIANA AUTOMOTIVE, INC.
ENVIRONMENTAL & ENERGY MANAGEMENT SYSTEMS
FY2014 SIA SUSTAINABILITY OBJECTIVES & TARGETS (PLANTWIDE)

DRAFT
Authorized by: President/CEO
DRAFT
Date

INDICATORS/FOCUS ITEMS	PREVIOUS FY ACHIEVED	TARGET	ACTUAL STATUS QTR1	ACTUAL STATUS QTR 2	ACTUAL STATUS QTR 3	ACTUAL STATUS QTR 4	SCORE	OBJECTIVE	ACTIVITIES	SCHEDULE
I. PARTICIPATION										
Plantwide Participation	100%	100%						Obtain 100% participation, which will lead to environmental impact reductions	Sustainability awareness campaigns	
									Ensure positive Environmental Systems Review results	
									Promote Sustainability Concerns List participation	
									Sustainability liaison meetings	
									Associate and liaison training	
	91.3% EMS/90% EnMS	95% EMS/95%EnMS						Obtain a 95% awareness result in the Associate Survey on both the EMS and EnMS Policies	Policy promotion during training and in campaigns	
II. ENVIRONMENTAL MANAGEMENT										
Waste Generated	220.5 lbs/unit	218.64 lbs/unit						Lower waste generated	Conduct waste generated awareness campaign	
									Ensure/Assist shops implement waste reduction activities	
									Research reuse options for Paint Sludge	
									Assess environmental efficiency of packaging for new model parts during approval process	
Waste Discharged	0.064 lbs/unit	0.07 lbs/unit						Lower waste discharged	Work with Paint to find alternative disposal of phosphate sludge	
									Conduct targeted waste discharged campaign	
									Ensure/Assist shops implement waste reduction activities	
Waste Reduction Score	260.3	234.3						Improve disposal methods of waste; decrease Waste Reduction Score	Educate shops on waste disposal options	
									Conduct waste disposal hierarchy campaign	
									Ensure/Assist shops implement waste reduction activities	
Biodiversity	11277.562	9433.967						Reduce plantwide biodiversity factor for chemical usage	Educate shops on eco friendly chemical usage/sourcing	
									Conduct green chemical campaign	
									Host Household Hazardous Waste Drop event	
	One new project	One new project						Enhance land use of property	Seek opportunties to increase biodiversity of property	
									Hold Prairie Grass education/walk event	
Green Supply Chain	80% completion	80% completion						Obtain supplier sustainabilty baseline data	Implement Supplier Sustainability Scorecard initiative with Purchasing	
									Provide sustainability and audit training to Purchasing	
	100%	100%						Increase Purchasing's sustainability awareness	Conduct targeted green supply chain campaign	
Travel Efficiency	119.185 miles/vehicle/day	118.92 miles/vehicle/day						Reduce exhaust from operations by reducing miles traveled to deliver Camry parts	Work with Purchasing to understand procurement decisions	
									Assist D. Bol in working with route structuring with TEMA as needed	
	n/a	no idling						Implement no idling policies for parts and waste transporters	Research current policies	
									Implement no idling policy and inspection procedures	
Water Usage	547.26 gal/unit	530.84 gal/unit						Reduce water usage	Conduct water use reduction campaign	
									Assist shops in implementing water usage kaizens	
Air Emissions	n/a	10 kaizens						Reduce VOC and PM emissions by implementing 10 air emissions kaizens	Work with Paint to research solvent reductions	
									Conduct targeting VOC reduction campaign	
									Educate shops on VOCs, their VOC emissions	
									Work with Logistics/Venture/Materials to reduce truck idling	
									Conduct targeting PM reduction campaign	
									Educate shops on PM, their PM emissions	
Compliance	Full compliance	Full compliance						Zero compliance deviations	Conduct quarterly compliance audits	
									Provide training materials to shops regarding compliance	
III. ENERGY MANAGEMENT										
CO2e Emissions	0.5 metric ton/unit	0.49 metric ton/unit						Reduce plant CO2e emissions	Work with TPM, Engineering to reduce electricity and natural gas usage	
									Educate shops on electricity and natural gas CO2e conversions	
Electrical Usage	7.3% 2yr. Combined total = 8.5% -------- n/a	3% reduction from FY2013 actual usage -------- Kaizen Target: 37						Meet or exceed plant energy performance target	Assist Energy Liaison meetings, training	
									Conduct energy usage campaigns	
									Develop energy usage materials (posters, labels, handouts, emails)	
									Assist in non-production energy usage weekend audits	
									Assist in production energy audits	
Natural Gas Usage									Assist Energy Liaison meetings, training	
									Conduct natural gas usage campaigns	
									Develop natural gas usage materials (posters, labels, handouts, emails)	
									Assist in non-production natural gas (energy) usage weekend audits	
									Assist in production natural gas (energy)audits	
									Implement dock door insulation assessment/improvement	

SCHEDULE: Apr | May | Jun | Fiscal Year Start | Jul | Aug | Sep | Fiscal Year End | Oct | Nov | Dec | Calendar Year End | Jan | Feb | Mar | Calendar Year End

Shop Sustainability Plan

SUBARU of INDIANA AUTOMOTIVE, INC.

ENVIRONMENTAL & ENERGY MANAGEMENT SYSTEMS

FY2014 OBJECTIVES & TARGETS IMPROVEMENT PLAN

SECTION/AREA: ENGINE

Authorized by: Section Manager

Date

INDICATORS/FOCUS ITEMS	PREVIOUS FY ACHIEVED	TARGET	ACTUAL STATUS QTR1	ACTUAL STATUS QTR 2	ACTUAL STATUS QTR 3	ACTUAL STATUS QTR 4	SCORE	OBJECTIVE	ACTIVITIES	SCHEDULE A M J J A S O N D J F M
I. PARTICIPATION										
Plantwide Participation	n/a	100% of teams						Increase shop participation by having at least one Sustainablity Concern item per team.	One project/team displayed on team board	★ (S)
		95% EMS/95% EnMS						Obtain a 95% awareness result in the Associate Survey on both the EMS and EnMS Policies	Pass out flyers with questions/answers	★ (A) ★ (N) ★ (F)
II. ENVIRONMENTAL MANAGEMENT										
Waste Generated	4.61 pounds/unit	4.61 pounds/unit						Lower waste generated	1 kaizen per group to reduce plastic/cardboard or oil	★ (S)
Waste Discharged	0.001 pounds/unit	0.002 pounds/unit						Lower waste discharged	Kaizens to Reduce Sealer & Sealer Rag Waste	→ (J – D)
Waste Reduction Score	18.21	16.21						Implement waste reduction kaizens	1 kaizen per team area (both shifts together) to reduce waste	★ (D)
Biodiversity	4.59	4.4						Reduce biodiversity factor by reducing hazardous chemical usage	Reduce aerosol cans (paint, brake clean) find new methods	★ (S)
Water Usage	n/a	4 kaizens						Implement 4 water usage reduction kaizens; one per quarter	Monitor wash machine change out Monitor anit-freeze water mix for test room	→ (J – M)
Compliance	n/a	100% compliant						Zero compliance deviations	Cage cop schedule to monitor our waste stream cage	→ (J – M)
III. ENERGY MANAGEMENT										
Electrical Usage	3,945,413 KWH	3,827,050 KWH						Meet or exceed shop's electrical usage target	Control light usage, Change out High Bay lights to T8 type Verify sleep modes of equipment Power down all computers at end of shift/weekends	★ (D) → (D – M) → (D – M) → (D – M)

Shop Environmental Score

1. Establish each shop's sustainability performance indicators.

BODY KEY PERFORMANCE INDICATORS:

- Waste Generated
- Waste Reduction Score
- Hazardous Chemical Usage
- Water Usage
- Air Emissions
- Participation
- Compliance
- Energy Usage

Different areas could potentially have different KPI's.

Shop Environmental Score

2. Give targets to each shop for their KPI's.
   - Based on historical usage and percentage of total plant usage.

BODY'S TARGETS:

KPI	Target
Waste Generated	1.12 pounds/unit
Waste Reduction Score	7
Hazardous Chemical Usage	4
Water Usage	400,000 gallons/unit
Air Emissions (PM)	19.17 pounds/unit
Participation	100%
Compliance	100%
Energy Usage	810,000 kWh/month

Shop Environmental Score

3. Translate actual v. target performance into a 0-10 scale.
   - Certain % away from target gives you "X" score.

BODY ACTUAL V. TARGET

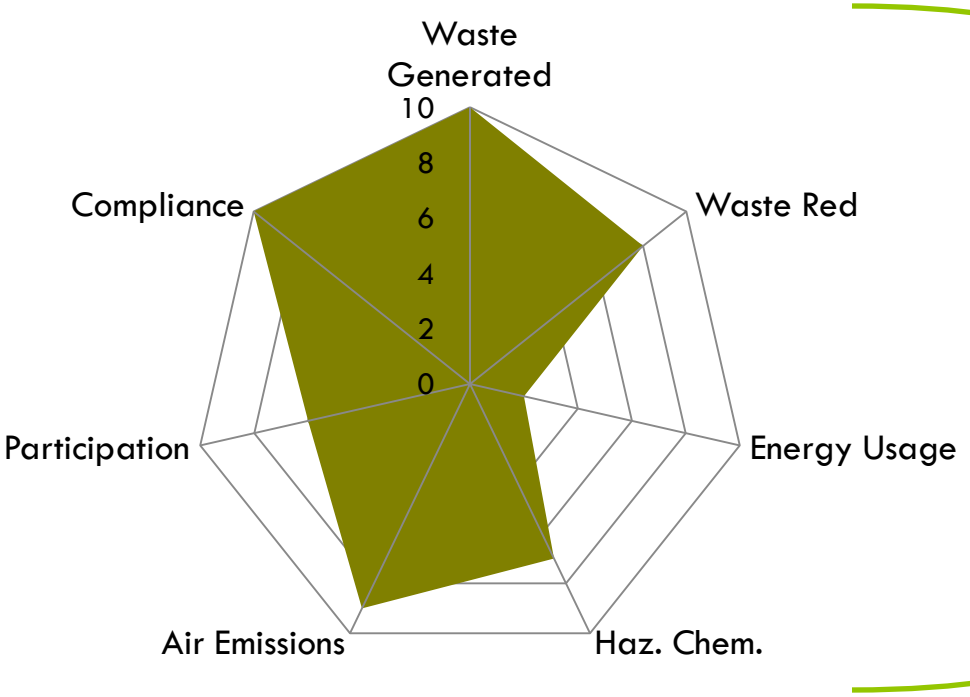
KPI	Target	Actual	% Discrepancy	Score
Waste Generated	1.12 lbs/unit	0.98 lbs/unit	+ 69.64%	10
Waste Red	7	8	+ 14.29%	8
Energy Usage	810,000 kWh/month	1,476,954 kWh/month	+ 82.34%	2
Haz. Chem.	4	5	+ 25.00%	7
Air Emissions	19.17 lbs/unit	19.56 lbs/unit	+ 2.03%	9
Participation	100%	60%	+ 40.00%	6
Compliance	100%	100%	0%	10

SCALE	
Discrepancy	**Score**
100% +	0
89-99%	1
77-88%	2
65-76%	3
53-64%	4
41-52%	5
29-40%	6
17-28%	7
5-16%	8
0-4%	9
- 0%	10

Shop Environmental Score

4. Combine performance metrics to give each shop a comprehensive environmental score.

BODY ENVIRONMENTAL SCORE

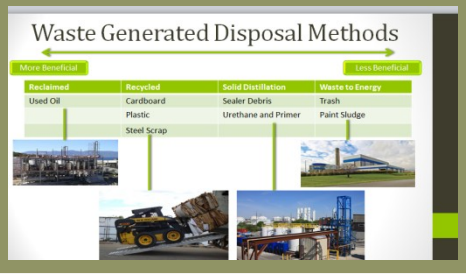


BODY's total environmental score would be 52/70, or **74%**

Sustainability Participation-Campaigns

Monthly Focus Item

Training to the Sustainability Liaisons



Associate training

Educational posters

CCTV Educational spots

Update Challenges

Update kaizen competitions

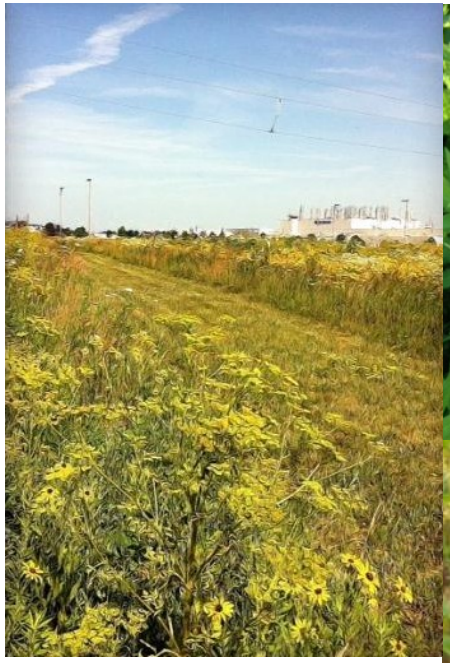
Plant Sustainability

Expanded activities, justified by sustainability program

Compost Initiative

Diverted 6,930 lbs of waste from landfill in 2012

Prairie Restoration



30 acres restored

Sustainability Plan Summary

- Takes **everything** into account; holistic.
- Aspects that combine to create environmental score are **individualized** for each shop.
  - Requires leadership involvement.
  - Allows each shop to participate and contribute to elements they truly interact with, have influence over.
- **Balanced** combination of qualitative and quantitative metrics.
- Will inspire continuous **improvement**.
- **Cross-functional** teams will be required to achieve improvement.

Thank you

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